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THE LAWN.

What is a lawn? There is, as we apprehend, no subject connected with rural life, concerning which people have such different and opposite ideas as this. It is a term used by every one, from the possessor of a suburban house with its quarter or half acre of ground, up to the proprietor of a large rural estate. Each one has his own distinct idea of what constitutes a lawn. Some will dignify the small grass plot in front of the dwelling house, used once a week for the family bleaching, as *the lawn;* others, perhaps, with an undue reverence for the word, think it can only apply to a very extensive portion of ground, and would be satisfied with nothing short of a park; and between these extremes the term is quite as frequently misapplied.

The question then arises, what is meant by *the lawn?* What is its nature, and what constitutes a lawn? We begin then, by a definition. If you consult your Webster, you will find that the term is applied to a certain part of the Episcopal Vestment, and by a figure of speech, in which a part is sometimes used to denote the whole, it is sometimes used to designate the Episcopal office itself. It is very clear that this is not the meaning that applies to our term.

Then again, you will find "Lawn" defined as "An open space between woods; a space of ground covered with grass, generally in front of, or around a house or mansion."

> "Betwixt these *Lawns*, or level downs, and flocks,
> Grazing the tender herbs, were interspersed."

This then is the general acceptation of the word, that is to say, that portion of the grounds immediately surrounding the mansion, is known as the Lawn.

This term as associated with the English School of Landscape Gardening, carries with it ideas significant of great beauty. In all fine English estates the Lawn is a feature in itself; at once the pride and beauty of the place, and as such, no expense or pains is spared in its construction and subsequent maintenance.

It is, in fact, hardly possible to overestimate the value of a well maintained Lawn to a fine place.

To enter into a full description of what constitutes a fine lawn in the English ac-

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ceptation, would involve a treatise too extended for the present article. It would involve not only a discourse agricultural on the preparation of the ground, and laying the same down into grass, but we should have to make digression into the field of Landscape Gardening, Landscape Engineering, the science of arboriculture, of trees, shrubs and flowers; we should have to discourse to our readers on the art of composition, and refer him to the rules of art, as studied and expressed by the Landscape Artist. We should have to talk about road building and gravelled walks, and a good many other matters besides, not to mention all the smaller items of embellishments and works of art. All this would make a very interesting and instructive article; but our design when we set out did not embrace so large a scope. Should information be desired on these points we may return to the subject at some future time. Our present design is to treat only of the ground work, the green sward, and to give a few hints as to its construction and keeping. It is a subject which we are persuaded will interest many of our readers, for there is no question more frequently put to us than this one: "How shall I make a good lawn, and how shall I keep it looking well throughout the season?"

The subject is by no means so simple as the uninitiated imagine. To make a good lawn is not an easy matter. It involves time, expense, and labor, three very essential requisites to every good work.

The failures in this country are the general rule, the successful attempts are the exceptions. The failures may universally be attributed to ignorance of the conditions, or the neglect of their proper fulfillment.

If the difficulty be great in England, where the moist soil, the humid atmosphere, and clouded sky, are all in such contrast with our baked soil, protracted droughts, and brazen canopy, the difficulty here is ten-fold greater. That failure so often comes, and that success is so very exceptional, may then be readily understood. Hence it is, that the rules laid down by the English authorities, although founded on thorough science, are in the main not to be relied upon for our climate. We must go beyond them, and with a knowledge of the causes which operate against us seek means to overcome the difficulty.

To such of our readers then who are seeking information on this subject, we would remind them that the work they have in contemplation, is one which is to last a life time, and as it is to be done but once, it is worthy of all the study, time, expense and labour they have to bestow.

One of the great mistakes made in the agricultural practice of this country is, the paying so much attention to the *Chemical* condition of the soil, and so little to the *Mechanical*. Agricultural books are ransacked to find out the best fertilizers, chemists are called upon for analysis, and piles of money are invested in heaps of every description of manure; but it happens rarely that we find due attention paid to the mechanical condition and proper manipulation of the soil. Here is the first blunder made in the construction of a lawn. We do not mean it to be inferred, that we hold that grass will grow into a handsome sod, and keep green on a poor soil; but we do mean to say most distinctly, that unless the soil is properly prepared, you cannot, with all the manure you can gather, make a lawn of high grade; you may make the grass grow rank and long, and cut abundant crops for hay, but you will never feast your eyes on a close, even, velvety and evergreen lawn.

To accomplish your object, you must begin by a most thorough breaking up of the soil,—plough—plough deeply, then put in your sub-soil plough, stir up the sub-soil thoroughly until you have a deep and loose foundation. If your dimensions are small, and it be possible, we would say, use the spade in place of the plough, trench, just as thoroughly as if you were making an asparagus bed for your kitchen garden. But as this practice would be thorough for a lawn of not over an acre in extent, it might be impracticable for grounds of greater extent, and we would therefore be content

with a thorough sub-soiling. Then gather up every stone, large and small, and bring the surface of the ground by repeated harrowing, and the use of the shovel to as uniform a grade as labor will accomplish.

The next thing to be considered is, that this soil which you have so treated, may not only be very poor, but filled with seeds of pestilent weeds, which have lain dormant in the soil; even the sub-soil which you have brought to the surface may contain a crop; now it will never do to seed your lawn with the soil in this condition. Then too you may choose to apply an amount of manure which you have on hand; this very manure may be filled with seeds which would stock your grounds afresh.

Here is an important problem to solve. How shall we clean this ground? How shall we fertilize without stocking the soil with weed seeds? Neglect this, and after you have made your lawn, you will have the satisfaction of seeing it look like your neighbors', that is to say, exhibiting here and there very interesting patches of dandelion, plantain, daisey, thistles, *et id omne genus* of pestilent weeds, that you may worry out your life in fruitless attempts to exterminate. Now we think all this may be obviated in the process of *mechanical preparation*, that is to say, the cleaning and the manuring process work together. And this result may be accomplished by the use of green manures, *i. e.* growing a crop on the ground to plough in as manure. Our own practice is one which has proved successful, and we will suggest it here for our readers' benefit. We commence ploughing and sub-soiling just so early in the Spring as the ground is sufficiently dried to leave the upturned soil friable and tractable; then after there is no more risk of frost, we harrow the ground, and sow over the same a very heavy seeding of buckwheat; this will start with the first warm suns, and with it will germinate all the foul seed on the surface of the ground; the buckwheat being of quick growth, soon covers the ground, and effectually strangles every presumptuous weed. We watch our growing crop with lively interest, and when early in the Summer it comes into flower, presenting a pleasing though unusual sight at that season, we remorselessly, before the seed has commenced to form, put in the plough and lay low all this field of beauty.

We have now put into the soil the equivalent of many loads of manure; have not added a solitary foul seed to the soil; have smothered out an enormous crop which had started into life, and have saved time and labor in hauling manure to the ground; not to speak of the store of manure itself, which can go to the crop of corn or potatoes.

This process may again be gone through with, or the ground may lie in its present state for several weeks, when the final process of ploughing, harrowing, clearing of stones, rolling, and leveling for the grass crop is commenced; then, late in the summer, a little after the time of sowing buckwheat, the ground being ready, we sow our seed, not as farmers usually do with a crop to realize from the coming season, but we give all to the grass; yet as a protection to the grass, we sow a moderate seeding of buckwheat, which coming up ahead of the grass, shelters the young crop from the hot suns, and which, when full grown and before it has time to mature its seed, will be cut down by the first frost and laid over the young grass, forming an excellent top dressing, and at the same time a winter overcoat. We have heard it objected to buckwheat, that it sours the ground. This we believe to be a fallacy, akin to many other errors and superstitions popular in the rural community. If, however, you are impressed with the fallacy, you may readily obviate the difficulty, (and with very great advantage to your ground) by the addition of a light top dressing of shell lime and unleached wood ashes.

A word now as to the seeding of your lawn. With what grasses will you seed it? As to this point, authorities differ. Some prefer grass of one kind alone, while others are profuse in their varieties.

Loudon, eminent as authority on Land-

scape Gardening, albeit a little antiquated, recommends several kinds, viz: Agróstis vulgaris var. tenuifolia, Festuca duriuscula, Festuca ovina, Cynosurus Cristatus, Poa praténsis, Avena flavéscens, and Trifolium minus. These seeds to be mixed in equal proportions and sown at the rate of from four to six bushels to the acre. Then again we have the authority of Lawson, as quoted by Charles McIntosh, in his beautiful "Book of the Garden," of whom he says "we have no higher authority," who recommends the following table:

"—Mr. Lawson's list of Lawn grasses, etc. —kinds and quantities of Grass seeds required for sowing an imperial acre, for fine Lawns and Bowling greens, &c., kept constantly under the scythe, sown without a crop of barley or other grain, a practice which should not be followed where fine Lawns are required.

	Light soil.	*Med. soil.*	*Heavy soil.*
Avena flavescens,	1 lbs.	lbs.	lbs.
Cynosurus Cristatus,	5 "	6 "	7 "
Festuca duriuscula,	3 "	3 "	4 "
F. tenuifolia,	2 "	2 "	1 "
Lolium perenne tenue	20 "	20 "	20 "
Poa Sempervirens,	1½ "	1¾ "	2 "
P. Nemoralis	1½ "	1½ "	2 "
P. Trivialis,	1½ "	1¾ "	2 "
Trifolium repens,	7 "	7 "	7 "
T. minus,	2 "	2 "	1 "
	44½	45¼	46

"In cases where primary expense is deemed secondary to ultimate effect, 2 lbs. of the evergreen-wood meadow grass (*Poa Nemoralis* var, *Sempervirens*,) may be added to the quantities given above; and where the ground is shaded by trees, both *Poa Nemoralis* and *Poa Nemoralis Sempervirens* should be substituted for equal quantities of the two Festucas (given above); such quantities being dependent on the extent and depth of the shade."

These are English authorities, and the formulas are intended for the English climate and soil,—whether they are equally applicable here admits of a question.—There might be difficulty too in procuring the several varieties, and then too, some of them might be old and unreliable.

Our own judgment would be to use the two varieties known in this country as Red Top and Kentucky blue-grass, adding white clover, and a pound or so of the sweet scented vernal *anthoxanthem odoratum* for the sake of the bouquet when cut. If the space intended to be kept as lawn be small, we would even go so far as to say, use but one grass and let that be the blue grass. If the grounds are extensive and it be desirable to grow the remoter part to a hay crop, say the flanks of the Lawn, we would earnestly recommend a trial of the Rye grass, one of the most valued of the English hay grasses; but make sure and get the *perennial*, and not the annual variety.

The effect of this grass in the Landscape is very beautiful. No grain crop exceeds it in beauty of appearance; it waves with every breath of air that passes over, and at a little distance has the appearance of water ruffled by the wind. It may not prove lasting, but as it fails other grasses may be sown with a top dressing; one side or flank may be devoted to this grass, and the other to timothy, or a mixture of timothy with red top.

This then is simply the ground-work of the Lawn. If it be in contemplation to plant groups of trees and shrubs, the process need not interfere in any respect with the plan; such places as are intended for the groups may be left unseeded. We would recommend the marking out of these spots, and raising the grade of the same somewhat above that of the Lawn; and keeping them free of grass. The effect of this will be not only to add variety to the scene, but greatly to enhance and set off the beauty of the trees and shrubs. It will add to their apparent size while young, and to such as are grown as single specimens, will give a majesty far greater than if they started from the level of the grass. Another good reason for this practice may be added in the avoiding all the trouble of cutting the grass among these trees and shrubs when the Lawn is mowed, which cutting

would have to be done by hand, and with a sickle; such places being impracticable to the scythe. The keeping in condition of a Lawn so constructed, will depend upon the liberality of the proprietor. It should be kept close by frequent mowings, and this generally after a rain, or while the grass is wet.

One word we would add as to the edges of the grass which border on the road ways or walks: these instead of being cut sharp down to the level of the roads and walks as usually done, should all be neatly and uniformly sloped down to the road level; this will obviate what otherwise presents a very unsightly contrast, causing the best planned roads and most graceful threads of walk to look like interruptions of the beautiful green.

We have now had our say as to the preparation and the essentials of a fine Lawn. We honestly think we have not overestimated the value of the same, and we leave the subject, submitting to the judgment of our readers whether a work so important, and intended to be so permanent, is not worthy of any care, labour, or expense, which will insure success.

THE IMPROVEMENT OF FLOWERS.—HYBRIDIZATION.

BY F. PARKMAN, JAMAICA PLAIN, MASS.

THE great majority of plants have the power of self-reproduction. In other words, both the fertilizing and the recipient organs are perfect in them, and the ovaries of the flower are capable of being impregnated by the anthers of the same flower. In other cases, as for example, the familiar one of the squash, the male flower is distinct from the female, though both grow on one plant. Instances are comparatively rare where a plant bears flowers of one sex only, and requires the aid of pollen from another plant to render it fruitful.

Hermaphrodite flowers, then, are the rule; and such flowers fertilized with their own pollen, will go on indefinitely producing individuals like themselves, subject only to the modifications arising from culture, and to the accidental and usually temporary variations arising from "sports." But suppose the ovaries of a flower to be impregnated with the pollen of a flower of a different species, the result is a *hybrid*, partaking of the character of both parents; or, if the two flowers are merely two varieties of the same species, then the offspring resulting is called a *cross*. This process of intermixture is constantly going on in Nature. Insects and the wind are Nature's great hybridizers. The bees, especially, flying from flower to flower, covered with the fertilizing dust, are the unconscious authors of more new varieties than all the florists and botanists, who, since art and science began, have experimented in this captivating field. It is a theory of some botanists, that the original number of species was very small, and that the vast multitude now existing, have resulted in the course of ages from natural hybridization. According to this belief, the process of intermixture is not only in perfect harmony with Nature, but forms an essential part of her economy.

With respect to hybrids, two great questions arise; though those who advocate the theory just alluded to, will scarcely be willing to admit that such questions exist: First, have hybrids the power of reproduction? Secondly, granting that they have such power, will the offspring of the hybrid resemble its parent?

Neither of these questions is capable of a categorical answer. Some hybrids will bear fertile seed, and others will not. The offspring of some precisely resemble the parent, while those of others return to the forms of the maternal or paternal grand-parent. Thus, a red and a yellow Indian corn may be intermarried, and the offspring will partake of the character of both; but of the

descendants of this offspring, some will be red and some yellow. On the other hand, impregnate Magnolia conspicua, with the pollen of Magnolia purpurea. The result is the beautiful Magnolia soulangiana, which is capable of being reproduced indefinitely from its own seed, its offspring rarely, if ever, reverting to the characteristics of the original species.

Barren hybrids are no doubt numerous, but fertile hybrids are perhaps equally so. Barrenness, where it occurs, may often be traced to the fact that the male and female organs of the hybrids do not come to their maturity at the same time. The anther or male organ sometimes matures first, and the pollen is formed and shed before the stigma or female organ of the flower is ready to receive it. Hence, these flowers, barren without external aid, may often be fertilized by the pollen of other flowers applied when the stigma is mature.

Another important inquiry presents itself in connection with the phenomena of hybridization. Within what degrees of affinity is the possibility of intermarriage limited? Clearly, the pollen of a lily will not impregnate a rose; but any species of rose may be impregnated by the pollen of any other species of rose. More than this, hybrids have been occasionally produced between individuals of different genera. Thus, there is a well attested instance of an offspring resulting from the impregnation of Digitalis ambigua, with the pollen of Gloxinia speciosa. Probably, in this case, the offspring was barren. But though hybrids may occasionally result from the intermarriage of allied genera, like Digitalis and Gloxinia, they can never result from that of genera between which there is no affinity.

In the hybridization of two distinct species, the influence of the male parent upon the female is sometimes very striking. We have repeatedly impregnated the flowers of Delphinium elatum, with the pollen of Delphinium formosum, which is itself probably, a hybrid of the fertile and permanent class. The offspring usually displayed the combined features of both parents; but, in a few instances, the male impressed its characteristics with such distinctness and force as quite to obliterate those of the female, and the resulting seedlings were undistinguishable from Delphinium formosum.

The processes of hybridization are of the utmost value to the florist. Combined with those of culture and selection, briefly described by us in a former article, they give the highest floricultural results. No better illustration of these need be given than that afforded by the Rose. The most prized and brilliant classes of this regal flower, are wholly due to hybridization. The Hybrid Perpetuals, Hybrid Chinas, Bourbons and Noisettes, are all the offspring of the intermarriage of distinct species. An humbler instance occurs in the Pansy, of which the varied and rich coloring is produced by the hybridization of the wild European violet, Viola tricolor, with other wild species of the genus, and a long course of subsequent culture and selection, by which the small and ill-developed flowers have been brought up to their present form and size.

By hybridization we combine in one plant the desirable qualities of several. Thus, a plant is remarkable for the grace, vigor, or compactness of its habit of growth, while another plant of the same, or a kindred species, is remarkable for the brilliant coloring of its flowers. We impregnate the flowers of the former with the pollen of the latter, and if the operation is successful, we obtain a result in which the color of the one and the habit of the other are, to a greater or less degree, united. Again, a plant has hardiness, vigor, and beauty; but it blooms only once in the season. Another plant of a kindred species, though perhaps less hardy and robust, has the property of blooming at intervals throughout a great part of the year. Its pollen is used to impregnate the flowers of the former, and, from the resulting seed, a plant is obtained which combines the maternal hardiness and vigor, with the paternal properties of continued blooming. The Hybrid Perpetual Roses, already mentioned, are a case of this kind. In them, by repeated hybridization, the robustness of

the hardy June roses has been combined with the rich coloring and ever-blooming properties of the tender China varieties.

Now, for the benefit of the amateur, we propose to add a word as to the methods of hybridizing. They are extremely simple; indeed, in some cases, the florist merely places the two plants in juxtaposition, at a distance from other plants of the same species, and trusts to the bees to do his work for him. We believe that most of the hybrid roses have been produced by the simple process of shaking or rubbing the two flowers together. These modes, it is evident, are very uncertain; the chances are, that the flower will be impregnated with its own pollen, rather than with that of the flower placed in contact with it; and, hence, of a given number of seedlings resulting from such operations, the smaller part only will be hybrids. There are means, however, by which hybridization may be made almost certain. These are best illustrated by the case of such a flower as the Lily, where the reproductive organs are large and prominent. The pistil is conspicuous in the centre of the flower, and it is surrounded by six anthers, equally conspicuous. Soon after the flower opens, these anthers become covered with a fine brown dust; this is the pollen in a mature state; at the same time, the stigma or fleshy extremity of the pistil becomes moist. This is a sign that that organ also is mature. Now, if by design or accident, a few grains of the pollen are brought into contact with the moist surface of the stigma, they adhere and begin at once a species of downward growth. Each grain puts forth a minute tubular filament, which penetrates the pistil untill it reaches the ovary, where, by its fertilizing power, it causes the development of a seed. This seed is capable of producing a plant; and if the fertilizing pollen came from the same flower which bore the seed, or from another flower of the same kind, then this plant, of course, will not be a hybrid; but, if the pollen came from a flower of a different species, then the plant produced will be a true hybrid. The object, then, is to prevent the flower from being fertilized by its own pollen, and to ensure its being fertilized by the pollen of such other flower as may have been chosen by the operator.

We will suppose the Red Japan Lily to be selected as the seed-bearer, or maternal parent; the florist wishes to raise from it a plant which will produce flowers of a deeper and more lively color, and, to this end, he aims to fertilize it with the pollen of the Scarlet Martagon Lily. His Japan Lily is in a pot, in the green-house, where it can be more conveniently operated on than in the open air, and protected from wind or insects which might bring to it particles of pollen from other lilies. The moment its buds begin to open, and before its anthers have matured, he cuts them—the anthers—all off, so that it cannot be fertilized by its own pollen; then he watches its pistils, and when he sees a gummy moisture exuding from their extremities, he knows that they are ripe for impregnation, and touches them with the pollen of the Scarlet Martagon. Vital action takes place almost immediately. In time, the seed-pods swell, the seeds ripen, and when gathered and sown, produce the hybrid plants desired.

When this process is carried on in the open air, the chance of failure from accidental impregnation is of course much greater; yet when the precautions which will readily suggest themselves after a little experience are adopted, the prospect of success is good. The plant operated on should be grown at a distance from other plants of the same genus, or, where this is impossible, it may be protected by glass, gauze, or some other covering which does not exclude light. In flowers where the reproductive organs are small and numerous, the operation becomes much more difficult. The French, who have produced more hybrids than any other people, make use, in such cases, of a variety of tweezers and other implements for manipulating the flower. A camel's hair pencil is always convenient for applying the pollen, and a pair of small tweezers for removing the anthers. In the comparatively rare cases where the flower is of one sex only,

the process is greatly simplified, since self-impregnation is impossible, and there are no anthers to remove.

In conclusion, we commend such experiments to all amateurs. If, on the one hand, they demand patience, they are, on the other, very likely to reward it with most pleasing and interesting results.

DOES FRUIT GROWING PAY?

BY THE AUTHOR OF "TEN ACRES ENOUGH."

It is the experience of all who happen to come prominently before the public in connection with Agriculture, Horticulture, or any kindred pursuit, to be subjected to an almost uninterrupted catechism as to how the earth is to be cultivated, what fruits to plant, where to locate, what capital to begin with, and whether the business of fruit growing will pay. As in the case of the steamboat captain, the railroad conductor, and the ticket agent, there is no end to the questions. The writers of books on these subjects, the unlucky correspondents of the newspaper who append their names to what they write, all know how constant is the stream of enquiry. The fact is evidence of a wide-spread desire to obtain information upon topics in which there are more thousands interested than the generality of readers have any idea, as well as of lack of knowledge among this extensive class. The object which the majority have in view, the burthen of every inquiry, is to ascertain whether horticulture will pay. Profit is here, as everywhere, the great touchstone. There are men who can comprehend nothing that does not smack of six per cent., and who incontinently drop whatever they may have in hand whenever it falls below that zero of their affection. If there be principal enough, six per cent. may be a living rate. But in horticulture we look for more, because we are in the habit of getting more.

The American touchstone is everywhere the same—Will it pay? As a general proposition, fruit growing may be ranked among the remunerative occupations, or so vast a capital in money, land, and labor, would never have been devoted to it. The prevalent desire to plant trees and produce fruit finds its principal check in the doubt as to the profitableness of the occupation. Personal intercourse with multitudes of inquirers has developed this as a prominent impediment with many. Other horticulturists must have observed a similar tendency. One inquirer had set his mind on grape culture, but he knew nothing of the subject beyond what he had learned from watching the progress of a single vine in the small garden attached to his city residence. He was a thorough business man, expert at figures, and at financiering, and quite able to cipher out the problem that as from his city vine he had repeatedly sold six dollars worth of grapes in a season, so if he had room enough for a thousand, his income ought to be six thousand dollars.

He was too shrewd to believe so vast a profit possible from the small outlay necessary. In his rambles among fruit growers, seeking from a multitude of counsellors to obtain wisdom, he stumbled upon me. It was the very moderation of his views that made him incredulous of the profit he had figured up on paper. He had said to himself, that if the grape culture were even half so remunerative as this, there ought to be a vineyard on every farm in the country, and that every grape grower would become rich. He repeated the proposition to me. The corollary seemed inevitable from the premises; but we concluded that though great results were constantly realized from a single vine or two, such as he had ciphered out were probably impossible. His object was to get into the country, somewhere just outside of the city, and to do something with his mother earth, by which he could add a thousand dollars to his income. With

what he had already, that addition would make him snug.

I gave it as my opinion that the proposition was a very simple one; and taking him to a Hartford Prolific vine, four years old, told him it had last year produced forty pounds of grapes, which would have sold readily for $5, and this without the vine being in very good condition. I assured him that if he could procure sufficient ground to contain a thousand of these vines, get them into bearing, and attend to them as assiduously as he then did to his counting-house, he would be sure of his additional thousand a year—he would be made up, even if each vine yielded only a fifth of that before us. We both concluded it was almost impossible to overstock the market. The fox grape, whose flavor would outrank even a lieutenant general, sells in every market with the greatest readiness. There is a single vine of this variety, near Philadelphia, which coveres the tops of fourteen apple trees. No doubt the Indians who flourished there before the days of William Penn, have many times feasted on its clusters. No pruning knife has ever touched it, yet it produces 70 bushels of grapes yearly, which sell in the Philadelphia market for a dollar a bushel. During all this time the apple trees produce good crops of fruit.

Looking more carefully into this matter of the profit realized from all descriptions of fruit growing, and running over only two or three authorities on the subject, multitudes of instances are to be found where extraordinary gains are annually realized without apparent care or skill. Some years ago there was an orchard of 70 Mayduke cherry trees, a few miles below Philadelphia, the daily sales from which, during the season, amounted to $80. I have this week seen an Amber cherry tree, growing in New Jersey, from which $60 to $80 worth is annually sold, and the owner declares that if all the fruit were gathered, and at the right time, the product would be $100. From twenty apple trees of the Early Redstreak and the Early Queen varieties, growing near Philadelphia, 300 bushels of fruit have been gathered, which sold for $225. A single Washington plum tree, in a city garden, has been known to yield six bushels of fruit, worth $10 per bushel. A vineyard some sixteen miles from Philadelphia, occupying $\frac{3}{5}$ of an acre, has produced $300, when the grapes sold for only eight cents a pound, or at the rate of $800 per acre. A single Catawba vine, in the same neighborhood, has produced ten bushels, worth $40, at market prices. I have seen the Catawba clambering up the side of a barn in Delaware, and when only four years old, yielded hundreds of pounds of grapes.

The early settlers of this country, when writing home to their friends in England, speak in glowing language of the abundance of fine grapes which were everywhere to be found in the woods, proving the general adaptation of our soil and climate for the grape culture. Among those thus referred to is the Elsinburg, a native of New Jersey, and perhaps the only good original variety still cultivated, of the great profusion which appears to have been in existence at the first landing of the whites. Where have the others gone, or did the uneducated tastes of our progenitors so relish the rank muskiness of the Fox grape, as to pronounce it delicious?

No matter what fruit is examined, the same results are found to occur. A row of common gooseberries a hundred yards long, have realized over $40. Two superior Apricot trees, have produced $100 worth of fruit in a season. There are Onondaga pear trees in New Jersey gardens, which yield fruit enough, every season, to nett their owners $30 per tree. I have seen a small plum orchard, in which the owner confines his poultry by a high latticed fence, which never fails to produce an abundant crop of perfect fruit.

These are mere isolated beginnings, such as every reader can call to mind as occurring somewhere around him. They are unmistakable evidences of the great profit to be realised by those who cultivate vines and fruit trees intelligently and carefully. But if a single plum tree produce $30 annually

it will not invariably follow that 100 will produce $3,000. Yet the plum culture, in the hands of some men, has been made a great business. I find it stated that one fruit grower near New York has sent 1,600 bushels of plums to that market in a season, with apricots, for which he received $14 per bushel. This party has often declared that these plum trees, which stand about his buildings, and occupy but little room, produce him more profit than his farm of two hundred acres. Another grower has sold in New York, 400 bushels of Frost Gage plums in one season, for which he received $1200. At the recent meeting of the Western New York Fruit Growers' Society, it was stated by Mr. Spencer, that he had seen a vineyard of 1¾ acres, which produced ten tons of Isabella grapes. This ground would not grow wheat a foot high. Any one can tell how many times this crop, at a shilling a pound, would have paid for the ground at even $200 per acre.

It is thus manifest that fruit growing, whether on a large or small scale, is far more profitable than any other branch of agriculture. Though a thousand trees may not average the yield of a single one, yet the product will be sufficient to satisfy a reasonable man. The point is—get the trees, or vines, or bushes. Buy only the best. It is the worst possible economy to purchase a poor variety, or a stunted specimen, because it costs a shilling or two less at the nursery.

THE HEMLOCK.—ITS BEAUTY AND ITS VALUE.

BY C. N. B.

The Hemlock, as it is generally called, is the most beautiful tree of the Evergreen family. We consider it the handsomest of all evergreens. It is distinguished from all the pines by the softness and delicacy of its tufted foliage; from the spruce by its slender tapering branchlets, and the smallness of its limbs; and from the balsam-fir by its small terminal cones; by the irregularity of its branches, and the gracefulness of its whole appearance. The young trees, by their numerous irregular branches clothed with foliage of a delicate green, form a rich mass of verdure; and when, in the beginning of summer, each twig is terminated with a tuft of yellowish green, recent leaves, surmounting the darker green of the former year, the effect, as an object of beauty, is equalled by very few flowering shrubs, and far surpasses that produced by any other tree. It possesses a lightness and gracefulness—especially when the dark green mass is moved by the gentle breeze—that cannot fail to attract the attention of the most careless observer of the beautiful in nature; it is entirely free from that stiffness, grenadier-like appearance which some other trees of the same family exhibit. It is a happy, joyous tree; like the polite and vivacious Frenchman, it continually bows and smiles, alike in sunshine or storm, winter or summer: in the morning it welcomes by its glad smiles and graceful motions the glorious orb of day, and as he sinks beneath the western horizon, it waves its tiny hands as if to bid it a kind adieu for the night. When set on a lawn, singly or in groups, it forms a dense mass and produces a deep shade; perhaps it is best when planted in this way. We know a place where stand four or five noble hemlocks, beneath whose shade crops out a somewhat grotesque ledge of rocks—and we must say, though the locality is far from good, that we never pass that spot without mingled feelings of love and admiration, and have often wished that we could live, die, and be buried there, that they might sing a requiem over the grave of an humble lover of nature's beauty.

While collectors are searching zealously the remotest parts of the earth, and send-

ing home the products of their labor—which often prove of little value—we strangely neglect to cultivate and prize the handsomest evergreen that can be found the world over, so far as our knowledge extends.

It is perfectly hardy, being found in every part of this State, and far in the most northern parts of Canada; it is found in almost every kind of soil. It rises in the forest to the height, often, of sixty or seventy feet, and even more. It is often found and flourishes in the ruins of rocks, on side-hills, exposed to the violent storms—in dark glens, as well as in better localities, where it grows to perfection. It will grow on dry or wet ground, though it does best where it is tolerably moist.

Mr. Emerson, in his report on the shrubs and trees of Massachusetts, says: "As it bears pruning almost to any degree without suffering injury; it is well suited to form screens for the protection of more tender trees and plants, and for concealing disagreeable objects. By being planted in double or triple rows, it may in a few years be made to assume the appearance of an impenetrable wall—really impenetrable to the wind and to domestic animals.

"A hedge of this kind, seven or eight feet high, on a bleak, barren plain, exposed to the northwest winds, gave Dr. Green, of Mansfield, a warm, sunny, sheltered spot for the cultivation of delicate annual plants. When I saw the annuals, (several of which were rare exotics,) were beautiful; the hemlock screen was much more so." After having cited the above it is useless for us to try to add anything in its favor as a hedge plant. We have spoken of some of its advantages, and now perchance we hear some one say it is difficult to transplant, and that it grows slow, while young. The latter objection is real to some extent, it does not grow very fast—we mean small plants—for the first year or two; after that, if the land is good, it makes very good growth, though it grows, even when young, as well or better than many other things with which we take much pains, which are inferior to this. The former objection we shall answer by adding our own experience in transplanting the tree.

In 1856 we obtained a lot of small hemlock trees from one and a half to three feet in height, from a mucky swamp: we chose a moist day, in the latter part of May, and set them out as soon as possible; when taking them up, we were careful not to disturb the roots in the ball of earth. Four-fifths of them lived and did well. The next year we tried larger trees from a different soil, a loam somewhat gravelly, moved about seventy-five of sizes from six to nine feet in height, chose a stormy day; took them up with a ball of earth, as before, and set them out immediately. Every one lived and flourished finely. From experience we are satisfied that they are not difficult to make live, if properly treated. That it does not occupy the position among our ornamental trees that it ought to, we think all will allow. We hope some of the subscribers to the HORTICULTURIST will try the experiment of transplanting the hemlock—if experiment it can be called—and report.

Pokeepsie, 1864.

THE GARDEN.

BY T——, ELGIN, ILLINOIS.

WHAT words can waken more pleasurable recollections, or conjure brighter fancies? With what magic power they light up again the aurora of childhood; how they re-touch the fading memories of youth; what refreshing cheer they bring to toiling manhood; what soothing pictures and needed pastime to age? The Garden—ever the recurring memento and bright ideal of the Eden-home—cherished aspiration of the race in the ages!

—hallowed also, as the chosen resort and repose of the Messiah; scene of his Passion; place of his Sepulchre; witness of his Resurrection. The All-Father gave it at the first. We lost it; we try to re-construct and re-produce it, for our Human Nature yearns towards the Fatherland.

So we take the offerings of nature and of art; we gather all beautiful things; we plant "every tree pleasant to the sight and good for food," and having given them due arrangement and tasteful display in a little plot of ground, we call the smiling assemblage—Our Garden. The elements of its composition are pleasing, *most* pleasing forms, colors, flavors, odors, sounds. These, used with skilful adaptation, constitute the embellishment of home, and ministers to its true enjoyment. Not the home of the wealthy only, but of the humblest cottager as well. As it is the in-born desire of all, so it is within the reach of all—outside perhaps of the crowded city. A little thought, a little time, and less expense will bring many of its comforts and its pleasures to the humblest dwelling. Who of Adam's sons does not picture to himself and for himself that Eden home; who of Eve's daughters does not long for something of that lost Garden—its beautiful creations, delicious blooms, and refreshing fruits?

How much or how little of these may be requisite seems unimportant to inquire. The object sought is a pure and elevating pleasure. This will be secured to the lover of such pursuits in accordance to his taste, culture, and relative position. Hence the real enjoyments of the garden are much the same to rich and poor. On whatever scale we pursue the ornamental, and to whatever attainments we arrive, we are scarcely satisfied without progress. Something more is wanted, at least some change. There may be, it is true, a too lavish expenditure; like his of Jerusalem, our gratifications may end in satiety; an "Atticus" may lapse into garden-home monomania and become "too content and happy;" the lowly may become discouraged or disgusted with their "poor show;" but a tempered progress in the right direction will ensure to all classes the healthful enjoyments of garden-culture and home adornment.

A quarter of a century ago, when I brought my little family here, I brought with them some of the materials for such decoration—something to make my rustic home put on a cheery aspect. It was a good investment, that little bill of fruit trees and evergreens, ornamental shrubs, and flowering herbaceous plants and bulbs. Long-tried and steadfast friends in all our fortunes, how have they cheered us and our children, and they bless us still. And their offspring, how have they been multiplied and distributed all through our town and the adjacent country round, so that wherever I go, I am greeted by my smiling pets and old familiars.

My two-acre garden-home is all my own creation, save one grand old oak and a group of venerable Hickories—graced with the vine and creepers of the crimson leaf.—"Long ago," the wild natives rested from the chase beneath these shades, and here indulged their rude pastimes. Near by—and within the memory of the "oldest inhabitant"—their canoes were on the river, and their wigwams on the shore. They have silently passed away. Their arrows no longer rebound from their shaggy trunks. They crack those nuts no more. The Blue Bird, Meadow Lark and Robin return, harbingers of spring; the Jay, the Yellow Hammer, the Red Head and other Peckers, love still to linger around these old trees; and when they put on their leafy garniture, the Whippoorwill and the morning Dove are heard, and the Oriole, Thrush, and all the Warblers "sing (and build) among the branches." Underneath, springing from the turfy mould, the Liver-Leaf and Twin-Leaf, the Dark Flower and tawney Fillium, the Moccasin Flower, Succor and Painted Cup make their annual visits; but these red children of the prairies come not again.

I love these old trees, and all the more for their once narrow escape from the woodman's axe. What madness to destroy at once the growth of centuries, and a life-long

joy! It was woman's plea that secured to me this great pleasure. Bless her tasteful appreciation and innate love of the beautiful. There stands the old Overcup, still erect, firm, massive, majestic, grand in repose, and strong in the tempest. But these towering Shell barks, how gracefully they bend and wave in the passing gale! And when the storm is over, how beautifully grouped beneath the over-arching rainbow, and how resplendent in the glow of the setting sun!

The years have come and gone. Building and culture, with annual contributions from Flora and Pomona have beautified and enriched my humble, but pleasant home.—Around me now, are the parks and domes and spires and other structures, the cumulatives of the incipient city. Below, on the banks of the river—their loved Waugousha—are yet to be seen the tumuli of another and wasted race; while above in the distance, rise the "gleaming marbles," where rest our—already numerous—dear departed.

I have an out-look from my living-room windows, which is "a joy forever." Immediately across the river,—itself an object of beauty always—is a gently sloping bluff, rising some hundred feet or more, then sweeping off in the dim prairie distance. Mid-way up this slope stand clustered or scattered some young Red-Oaks, which retain their leaves persistently through the winter. Their color is bright purplish brown. These trees are of an irregular pyramidal form. When snow lies on the ground they stand out in bold relief, their forms sharply defined, and their colors contrasting finely with the light back ground. Just above, and partly environed by them is a tasteful cottage, with numerous evergreens. A little to the right and on the summit of the gentle acclivity, are grouped the rounded forms of our own Burr-Oaks, nude 'tis true in winter—yet finely penciled on the blue sky or warm amber glow of evening—but in summer, robed in richest greeen, charming the beholder in their beautiful repose, or upturning to the breeze a sheen of emerald and silver as no other trees ever did or can. Far beyond may be seen a cluster of Lombardy poplars, uplifting their oblong taper forms high above the horizon,—fitting and graceful land marks on the out-reaching prairie.

I have spoken of this out-look, partly because it presents several classes of trees of great beauty and of marked effect in the landscape, and partly because it suggests a useful and pleasing reflection. We embellish not for ourselves alone. From some standpoint these pleasure-giving objects will bless the view of others. Who is not happier for these art-creations, these arborescent forms, the laughing foliage, bloom and fruitage, which decorate some one's pleasure-grounds and dwelling? Spare then the trees, ye who have them, and plant ye who have them not. Let us make the beautiful in grounds a special study, and leisurely endeavor. So shall contemporaries admire—perhaps emulate—artistic culture, and posterity rejoice in these provident and beneficent labors.

AN ESSAY ON THE PREPARATION OF SOIL, AND PROPAGATING AND PLANTING OF GRAPE VINES,

Read before "The Missouri State Horticultural Society," at St. Louis, Mo., January 11th, 1865. By Dr. H. Schroder, of Bloomington, Ill.

* * * * * * *

The land for a new vineyard should, when possible, be plowed in the fall or if in the spring, just as soon as the ground is dry enough. To do this rightly, take a strong plow and plow as deep as you possibly can—in the same furrow follow with a deep Tiller plow, putting it as deep as the horses can draw, turning the subsoil, or at least well pulverizing it, and so go over all the land. If you have time enough it will be better to let the land lie for a few days or

weeks before laying off your rows—eight feet apart is the preferred distance. To lay off your rows and have them straight, take poles eight or ten feet long, and put them at the end of the rows—on each pole put a handkerchief, cap, or a loyal and if possible, a radical newspaper—use the poles as a guide. Then with a good team, plow a furrow straight between the poles from one side of the Vineyard to the other,—changing your guide poles for each row. After making the first furrow across the field, returning make another furrow two (2) feet from the first—so go up and down each row with the plow until you have thrown out a ditch, say two feet wide, along where each row of vines are to be planted. Now take Patrick with the spade, and have him spade the ground you have so plowed, as deeply as he can. That is, have him spade the bottom of the furrow thoroughly. If you have rotten manure, ashes or compost, go along each row with your wagon or cart, and throw in two or four inches of the manure into each ditch, covering the bottom well with it. Now put your plow on again, and plow so that every ditch will be filled up and a ridge formed along each row. By this plowing and spading you loosen the soil two or three feet deep. This frequent plowing thoroughly pulverizes the soil, and leaves it in a fit condition to be penetrated by the tender rootlets of the young vines. It will be seen that in preparing the ground in this way you will have an open drain on either side of each row of vines. It would be better if all those side drains could empty into an open drain, of larger size, at the end or ends of these small ones. Now you are ready for planting.

If you have no faithful German, go to work yourself—with a common garden hoe, make a slanting, shallow hole into your ridge, where you wish to plant the first vine. Take your vine from its water bath, in a bucket, where it should be kept until the moment before planting, or from its grouted bed, spread out the roots and cover your vine. To every vine put down a small stake 3 or 4 feet long—to this your vine is to be tied during its first year's growth—trim your vine so that you have but one eye above the ground. With your six or eight feet pole, measure off for your next vine and plant as before and so on until you get through your vineyard. If you have anything suitable, it would pay you to mulch your vine row. It will save you many a vine during the hot, dry days of our summers, and at the same time will enrich your ground.

You can now plow your ground between your rows, and between each row of vines plant two rows of strawberry plants—keep these plants in rows by frequently using the Cultivator between the grape rows and the strawberry plant. By this you keep your strawberries within bounds, and at the same time you keep the ground around your vines in good condition. Let no weeds grow in your vineyard—nor amongst your strawberry plants. By this plan of raising strawberries, last year, I sold over $3,000 worth from four acres of my old vineyard. These plants will pay you for all the treatment of the land as well as for the vines. It is very essential to have good healthy vines for planting any vineyard. The most failures have been made in consequence of planting inferior plants. Many good varieties of grapes have been condemned and called "humbugs," by reason of nothing but inferior "steam plants" having been planted. Many of these new kinds have been sold at enormous prices, and have given nothing but dissatisfaction to all buyers. I have had to pay dearly for my experience in this line.

Mr. President, my experience has taught me that the very best vines, in all cases, are those raised as layers. These layers must be grown from well ripened wood from bearing vines. The next best, I have found to be long cuttings, grown by proper treatment.

Vines from Layers.—These can be made by any thinking man, very readily, and one having a few good vines can soon have as many vines as he will want. If we want to see grape culture flourish we must teach

people how to get good vines, and how to get them *cheap*.

To make layers, prepare your ground so that it will be well pulverized around the vine you wish to lay down. Under the cane you wish to lay down, dig out a slight trench, with your hand bend down the lowest cane or branch, and pin it down to the bottom of the trench. Lay your vine in its whole length and there let it be until the eyes have made a growth of 5 or 6 inches, then fill up half your trench with good soil—in a week or so fill in the rest of the soil. When the young canes have made a growth of two or three feet pinch off the ends, in order to get riper and stronger wood, and plump eyes, and then leave them to take care of themselves until fall.—In the fall cut them loose from the mother vine, dig them up and cut them apart, so that you have a good cane from every shoot from the whole length of the cane you lay down.

Every such vine is worth a dozen of your steam made "single-eye" plants. If your cane is 7 feet long, you will have perhaps some twenty or thirty fine No. 1 layers from it. Some of my bearing vines have made me, in this way, over 100 extra good layers. You can imagine how many you can make from an acre of, say 1000 vines.

Last year I raised, on an average, 10,000 layers to the acre, and many a finger thick of bearing layers, and many made wood enough for over a gallon of wine to each vine, and enough to make fifty superior layers.

I cannot recommend you to follow this heavy layering from your bearing vines, year after year, for you assuredly weaken your vines by so doing. Be moderate in your layers, and you will be all right.

Plants from long Cuttings.—Cut your canes in the fall, with from two to five eyes or joints each, tie them in bundles of convenient size; say from fifty to a hundred, bury them in the ground, selecting a dry place, and surrounded with a little ditch—cover well with soil, and over that put a thick covering of litter or of manure.

Before planting, have your ground well spaded, two feet deep, and enriched with rotted manure. In April begin to plant—make a straight furrow eight inches deep. If you are not on sandy ground, and if you can get sand, it would be well to spread a little in the bottom of each furrow. Lay your cuttings slanting to the furrow, so that the upper eye is just covered with the surface soil; fill your furrow half full, treading the soil with the foot round each cutting, then fill the rest of the furrow. Make your next row about one foot from the first, and so on over the whole piece. If convenient you had better put on a mulch, of say two inches or so of dead leaves. This will be a great help in carrying your cuttings safely through the summer drought. and it keeps down the weeds. If you want to make your success more certain, it will be well to give your cutting bed some sort of shelter to keep off the sun. Drive stakes into the ground, upon which lay poles, and on them twigs or branches of trees having the leaves left on, when cut green. Leave this shelter until your cuttings have made a growth of two or three inches, removing the shelter during a "cool spell," or just before a rain storm. Keep the weeds down. The dead leaf mulch should be put on in this case, and if too dry, frequent watering will pay you well. If your cuttings have been good, you should not lose more than 5 per cent of them. If you plant varieties liable to mildew, I would advise you to have your shelter on until August, for shelter is often and most always a perfect preventative to mildew.

Mr. President, you have now my secrets on grape culture, and you see they are simple enough. In this business, as in all others, the principle required by one embarking, is common sense, no fear of work and unswerving perseverance. With these, any man can succeed. I trust these few disjointed remarks may encourage more than one to join us in the great work we have in hand.

CURIOSITIES OF VEGETATION.—No. I.

The phenomena of vegetation afford unlimited subjects for study and admiration. The moss which is heedlessly crushed under our feet and the towering forest-tree are alike subject to laws in their reproduction and dissemination, and these laws are invariable. A brief account of a few of the remarkable phenomena of the vegetable kingdom may prove both useful and interesting to our readers.

The reproduction and dispersion of plants are often performed in curious ways. The Cardamine Impatiens projects its ripened seed to a considerable distance, when touched, and thus accomplishes its dissemination as well as its perpetuity. The same process is observable in the squirting cucumber, the geranium, the common broom, and some other plants. The Mangrove holds fast its berries till they send down long, thread-like roots into the soil below. Many plants send forth runners, and it is interesting to observe how these give out shoots at about equal distances, where the soil is favorable, while they push their way over hard or stony ground, refusing to put out a single bud until a genial spot is reached. The strawberry is a familiar instance of this. Other plants, as the bramble and honeysuckle, send out branches which bend downwards till their extremities touch the ground, where they take root. Many leaves, as those of the orange, when they fall upon the ground, take root, and become new trees or plants.

Cultivation produces surprising effects upon vegetable productions. Potatoes, as found in their wild state, are small and scarcely eatable. Carrots are slender plants, not much thicker than a quill, and of a yellowish-white color. The Dahlia, on the other hand, under cultivation has lost one-half of its natural height. The trees of a valley, when removed to an elevated place, become slow of growth and smaller of size, but the timber is tougher and more durable than when grown in its original habitat. In the same manner, when mountain trees are transplanted to a valley, their growth may be increased, but their timber becomes softer and less durable. The colors of flowers change by culture in many ways. A blue flower will change to white or red, but not to a bright yellow. A bright yellow will become white or red, but never blue. The ranunculus, originally of an intense yellow, changes into scarlet, red, purple, and almost any color but blue. Sour crabs are metamorphosed by culture into sweet apples—sloes into plums. The wild rose has but one row of petals, but under cultivation it acquires many. The wild anemone is scarcely an inch in diameter; culture has produced specimens more than six inches in diameter.

The Adansonia, or Baobab Tree, is the giant of the vegetable world. We have the record of one whose trunk measured one hundred and four feet in circumference. The height of this tree does not exceed fifty or sixty feet, while the branches are about the same length, and when seen from a distance, the vast hemispherical cap of foliage almost resembles a forest. A full-grown Adansonia, with its deep green leaves, and large snowy blossoms is a magnificent sight. It attains to a patriarchal age, and it is said there are trees now living more than two thousand years old. It is a native of Senegal and other parts of Western Africa.

The Ficus Nedica, or Banyan tree, sends down fibrous roots from its wide spreading horizontal branches, to the ground beneath. These shoots are, at first, as flexible as hemp, and wave like ropes in the air. They take root in the ground, and serve as props to the ponderous branches, and as new trunks for the further extension of the tree. The full height of the Banyan tree is from sixty to eighty feet, and in many instances a single parent stem will extend itself until it covers not less than two acres.

The Dragon-Tree—another gigantic tropical growth—has ordinarily an erect trunk of not more than twelve or fourteen feet in height, which divides into short branches,

each terminating in an expanded tuft of pointed, sword-shaped leaves. There was one of these trees, destroyed by a tempest some forty years ago, in the island of Teneriffe, which measured forty-five feet in circumference, and nearly sixty feet in height, and which was supposed to be one of the oldest living inhabitants of our globe.

The Courbarils, of Brazil, are described as having trunks more than eighty feet in circumference at the base, and sixty feet where the boles become cylindrical. They are said to resemble living rocks more than trees, for it is only on the pinnacle of their bare and naked bark that foliage can be discovered, and that at such a distance from the eye that the forms of the leaves can not be distinctly seen.

There was, and for anything we know, there is still, a cypress at Chapultepec, in Mexico, whose trunk measured one hundred and eighteen feet in circumference. In Buckinghamshire, England, there is a famous yew which has a diameter of about twenty-seven feet.

The Norfolk pine, or Kawri of the New Zealanders, attains a huge size. This majestic tree grows to the height of from one hundred and sixty to two hundred and thirty feet. One is spoken of which measured seventy-five feet round the base.

Among gigantic flowers and leaves, we have the Victoria Regia, a water lily, thus described by its discoverer:—"The leaf on its upper surface is a bright green, in form almost orbicular, except that on one side it is slightly bent in; its diameter measured from five to six feet. Around the whole margin extended a rim from three to five inches high, on the inside light green, on the outside like the leaf's lower surface, of the brightest crimson. The calyx is four-leaved, each sepal upwards of seven inches in length and three inches in breadth; at the base they are white, inside reddish brown, and prickly outside. The diameter of the calyx is from twelve to thirteen inches; on it rests the magnificent corolla, which, when fully developed, completely covers the calyx with its hundred petals. When it first opens it is white, with pink in the middle, which spreads over the whole flower the more it advances in age, and it is generally found the next day altogether of a pink color; as if to enhance its beauty, it is sweet-scented.

The Victoria Regia was discovered in the river Berbice, in British Guiana, and named in honor of Queen Victoria. It was successfully cultivated and flowered, first in England, and since then in several instances in this country. Not many weeks since, one was on exhibition in this city in full blossom.

The Rafflesia Arnoldi is still larger than the Victoria Regia. This colossal parasite is a native of Sumatra, growing on a kind of vine, and having no true stem or leaves. The petals of the flower, as observed by the discoverer, were five in number, of a dull brick red, and covered with yellowish white spots. They and the nectary were from one-fourth to three-fourths of an inch in thickness. The flower measured a full yard across, and the nectary was of the capacity of six quarts, while the weight of the whole was at least fifteen pounds.

SPRING FLOWERS.

BY EDWARD S. RAND, JR.

ALTHOUGH the first of March is theoretically the first day of Spring, it is wont in our northern latitude to bring us more chilly winds than balmy breezes, and snow-squalls rather than snow-drops.

It is not till April that we can really set about Spring work, and even then in New-England the newly-plowed fields are often whitened with snow, and in the gardens the crocuses form bright blue and yellow

patterns in the white snow carpet. In the woods and fields the season is even more tardy, and were it not for the fragrant trailing aubutus (*Epigæa repens,*) in the pine woods, the tassels of the birches and poplars on the hill-sides, and little patches of starry saxifrage, with occasional blue violets and yellow cinquefoil in sunny nooks, the month of April would pass without its representative wild flowers, save the yellow catkins of the early willow.

Although a ramble in the April woods may to the true lover of nature be a feast of beauty, yet to one who has not learned to read the hidden mysteries which the great book of the woods and fields is perpetually unfolding — who cannot see in swelling buds the germ of future growth, or trace the wonders of slender grass, of spreading lichen or of starry moss, the still leafless branches and dry forest aisles may seem destitute of beauty, and the garden offer greater charms.

And, indeed, it is only in the severe winters that we may not find flowers in the garden from November to May. The frost must indeed be keen that will prevent the "lady's delight" or "heartsease" (*Viola tricolor,*) from opening its pretty and ever-favorite flowers, and all through the winter they may be found almost in the melting snow in sunny spots. For those who are fortunate enough to possess the Christmas violet, a choice bouquet of fragrant blossoms may be gathered each day in winter, when the sun can touch the swelling buds, and the Christmas rose (*Helleborus niger*) may always be found hiding under the dark, glossy green foliage. But these are not properly Spring flowers, and only serve as the floral bond which unites the Autumn with the Spring, and which, although lost perhaps for days in the keen, biting winter weather, is never wholly severed. The first Spring flower is the snow-drop, (*Galanthus nivalis,*) or "Pierce neige" of the French. At any other season this beautiful little flower would be unnoticed, but as the herald of Spring it is ever a favorite, and receives perhaps a warmer welcome than ever awaits the richest floral treasures which the summer pours forth. The flower opens its nodding bells from March to May, according to its situation, and remains in beauty many days. The general error in the cultivation of this little flower is too frequent transplanting. The bulbs should be planted in October, where they are to remain, and never taken up. As single they are inconspicuous — they should always be set in masses, say twenty to fifty bulbs in a clump. They will soon grow together, and year after year increase in abundance of blossom. The single variety is far prettier and more desirable than the double.

Next we have the crocus in its many interesting species and fine garden varieties, requiring similar treatment to the snow-drop, but oftener needing replanting, as the bulbs grow out of the ground, or are thrown out by the frost.

These flowers have a fine effect planted in the grass of a lawn, or in a grassy terrace. The sod prevents the bulb from being thrown out, and the flowers spangle the grass year after year, taking care of themselves.

Side by side with the crocus, quite as hardy, and far more delicate in its varied colors, is the Persian Iris, which we have fully described in an early chapter.* Among shrubs we have but one representative in early Spring (*Daphne mezereon,*) which expands its lilac flowers in early April. Delicately and powerfully fragrant, it is a most desirable plant, and in summer is no less ornamental in leaf and berry. The white variety is less common, and does not bloom quite as early. For a low garden hedge to separate divisions of the flower-garden, this plant is very useful. Its growth is compact, seldom exceeding a couple of feet in height.

But of all Spring flowers the most beautiful is the double red Hepatica (*H. triloba fl pl rubra.*) The foliage is evergreen, and comes out fresh from the winter's snow. As soon as the warm sun strikes the crown

* Horticulturist, January, 1865, Chap. 7.

of the plant, the little downy buds which are fully formed the preceding autumn grow very rapidly, and a few days of sunlight develope the bright petals.*

The flower is the brightest red, very durable, and as perfectly imbricated as a camellia; in size about as large as a five-cent piece; the buds are drooping, but the flower erect. The flowers cover the plant, hiding the foliage, and in the sunlight a clump in full bloom is almost dazzling. The blossoms are not fugitive, like the wild varieties, but last more than ten days in beauty. We have had the different blue and white varieties, and the double red, growing side by side for years, and the red always is a week earlier, and lasts a week longer. This little plant would make an exquisite edging for flower borders. The only protection we give it, if not covered by the snow, is a hemlock bough laid over the crown of the plant.

Next after the crocuses come the early Duc Van Thol tulips, which, although very transient are pretty. The treatment is very much that required for crocuses, only they should be planted a little deeper. The bulbs, if undisturbed, flower for many years. The single variety is more desirable than the double, the latter flowering later, and being a confused, inelegant flower.

The Grape Hyacinths (*Muscare botryoides* and *moschatum*) are general favorites. The flowers are small and delicate—blue, white, flesh-colored or brownish—plentifully produced early in April.

A sandy loam is most congenial to these bulbs, though they thrive and multiply in any good garden soil. Singly they make little show, but in clumps are rather effective. The bulbs do not thrive if frequently transplanted. There are many varieties; that with white flowers is the rarest and prettiest.

The common yellow daffodils (*Narcissus Orange Phœnix* and varieties) and all the different species of Narcissus, especially the hoop petticoat species, are desirable early spring flowers and do well on any garden soil. The Polyanthus varieties require later planting, a deeper soil and a little protection by a covering of litter, or rotten dung during the winter, as if planted early in the autumn they are apt to make a fall growth and get nipped by the frost. The Jonquil is a species of narcissus (N Jonquilla) and is perfectly hardy; of this there are many varieties, single and double, of which the former are the most desirable they are all delightfully fragrant.

The many varieties of the Hyacinth, (*H orientalis*) are too well known to need description: particular direction for their culture we have given in a former article on Dutch Bulbs.*

As a general rule, all hardy bulbs do better if protected during winter by a cover of litter. It must also be remembered, that the foliage must be grown well to ensure fine bloom the next spring: it should be allowed to die away of itself and never be cut off.

Among the most stately of our early flowers, are the Crown Imperials (*Fritti laria imperialis*). In early April, they push stoutly from the ground, and if the weather is favorable, grow with great rapidity. They require a deep rich soil, and should be strongly grown to produce good flowers. They are even large enough to be effective in clumps on a lawn, and when they die away in the summer, may be succeeded by Cannas and Castor beans (*Ricinus var*). The yellow orange and red varieties should be planted together for contrast of color; those with foliage marked with gold and silver, are very ornamental, but of lower growth and less sturdy habit. The double varieties are not particularly desirable. The Guinea Hen Flower, (*F. meleagris*) with its curious checquered brown, purple, yellow, or white flowers, is very ornamental. Plant in clumps like a crocus in any good garden soil.

The Persian Fritellaria, (*F. Persica*) is a plant with glaucous foliage, bearing a spike of brownish purple flowers, at the top

* It is now [March 18th] in full bloom in the latitude of Boston.

* Horticulturist, 1864, p. 366.

of the stem. This species when well grown is a very showy: plant like a Crown Imperial, four or five inches deep.

A pretty vernal flower is the Golden Alyssum (*A saxatile*). It is a dwarf, only a few inches high; a hardy perennial completely covered with bright golden yellow flowers in early spring. It contrasts well with the early creeping Phloxes, (*P. subulata* and *stoloniferа*,) with red, pink, white, and eyed flowers, which bloom about the same time.

Anemone pulsatilla, or Pasque flower, though rather later in blooming than many we have described, is properly a spring flower. The blossoms are more curious than beautiful, of a deep purple, with prominent yellow centre: the foliage is very beautiful, and in seed the plant is showy.

A pretty though rare garden flower, is the double variety of our wood anemone (*A nemorosa* and *Thalictrum anemoneiodes*); these plants require a shady, moist place, and are rather difficult to keep.

The Bloodroot, (*Sanguinaria Canadensis*) is easily domesticated, and is one of our earliest spring flowers: though ephemeral, it is very showy, and deserves a place in every garden. It needs a rich soil, and should be transplanted when the leaves die down in the autumn.

Delphinium tricolor is the earliest Larkspur; blooming in May; the plant seldom exceeds six inches in height; the flower is produced in a dense spike, and is of various shades of purple. As a species to hybridize with our later blooming species, this is a valuable acquisition; it is not a common plant.

The early Pæony (*P. tenuifolia*) is the earliest species; the foliage is ornamental, and the flower, when half expanded, very pretty.

Jeffersonia dipylla is a rare and beautiful spring flower, to which we have called attention in a former article.*

Omphalades verna, or navel wort, we have also described in the same article.

The dwarf and crested Iris (*I pumila* and *cristata*) are pretty early blooming species, too well known to need description.

The Primrose. (*Primula polyanthus*) and Cowslip, (*P. veris*) are pretty plants, suited for cool shady situations in the garden, blooming from the middle of April and through May. The flowers of the former are of various shades of brown and crimson, marked with yellow; those of the latter, pale yellow and red: some of the species are double. A good way to procure a stock is from seed, from which very fine varieties are often produced.

The Lungwort, (*Pulmonaria Virginica* and *officinalis*) are very ornamental, flowering in April and May; the flowers are bright blue, and red and blue. All these plants require a very sandy soil; in rich loam they soon die out.

As the month of May comes on we find great additions to the floral treasure of the garden; not only in herbaceous plants, but in flowering shrubs and trees, but even the mention of these must be delayed, till a future article.

* Horticulturist, Jan., 1865, p. 7.

OUR METHOD, No. III.

BY PRATIQUER.

Having named our three favorite grapes, we must not be understood to condemn all others, though we deem the larger portion of them as unworthy of *general* cultivation. Our next choice, still retaining the three colors, are Rebecca, Diana and Concord, but the first two are only for gardens and sheltered situations, the latter for Western Vineyards: for with such testimony as that of Dr. Edwards and George Husman of Missouri, we must believe it does far better west of the Ohio, than where it originated in Massachusetts, and on the banks of the Hudson. We are sorry that we cannot conscientiously extend this list so as to include many other kinds

under cultivation, but of other varieties already tried, we advise no one to plant Vineyards. Our nostrils are distended and we are snuffing the east wind for greater fragance, anticipating a golden age, or grape millennium when "no man shall be necessitated in search of his daily food to undergo any other trouble than that of reaching out his hand to pull his sweet and salutary fruits" and when we can gather luscious crops of the so highly lauded new varieties, now on probation. Let us do all we can to hasten this happy time, it will not come any too soon with all our efforts, but in the mean time don't neglect the varieties that are known to succeed in your neighborhood, even if that should be the despised Clinton, really one of our best wine grapes. The public taste is being educated for something better, and we must keep up with it: *proving all things* and holding fast that which is good: though we confess our faith would be stronger, with less extravagant puffing: less blowing of trumpets: fewer threats of suits at Law; and with more of (a greek word meaning) "that which will endure to be held up to and judged by the sunlight." We therefore advise our readers to plant one or more of the Adirondac, Iona and Miles, thus imitating the patience of him who bought the Raven to *see* for himself *if*, &c., &c., &c., though we still remember pocket-feellingly the genesis as well as the exodus of the Anna and some other much extolled, but worthless varieties.

Having selected our vineyard, prepared the soil, purchased and planted healthy Vines of the best well tried varieties, and having made it our interest as well as our duty to cultivate the ground by planting root crops that need to be hoed; having without pinching or pruning allowed our canes to grow short-jointed and vigorous, and having cut them down and covered for the winter, we propose, while they are enjoying a season of rest, as necessary to plants as to animals, to cast about and prepare for the future, and this leads us to consider shelter, compost, and materials for training and tying. We have already suggested planting evergreens, and if this has been neglected, we shall now *insist* upon it. Shelter is too important in our changeable climate to be overlooked, besides its advantages in winter, it is *indispensable in summer*. Tender vines may be made to bear our winters, by laying on the ground and covering with a few spadefulls of earth, even in Canada, but in summer the more hardy kinds are exposed to the cold currents of air so injurious to the grape vine especially if they come while the atmosphere is charged with moisture on a hot day. It is a well known fact that when our summer atmosphere is saturated with moisture, a sudden depression of temperature will produce rain, the atmosphere at 100° retaining four times as much moisture as when at 50°, thus producing the most favorable conditions for the developement of blight and mildew and perhaps of rot, indeed we have constantly been looking in the wrong direction for our failures, and need feel no surprise that our left handed efforts to remedy them have also failed. The winter protection is well enough, but the quicksands upon which we have grounded and are still floundering, are insane summer pruning and a lack of summer protection. Witness the hardihood of grapes grown in City yards and under the shelter of buildings. The case of the Johannisberg Vineyard is one in point. Finding that the finest grapes on that estate grew under the shelter of the castle walls, the proprietor surrounded the whole property with a stone wall ten feet high, thus forming a perfect protection from drafts of air, that so often in our climate, check the circulation suddenly, and induce disease, especially if our vines were originally feeble or were previously weakened by summer pruning, or overcropping. Surround the vineyard then with evergreens. Young plants of hemlock, arbor vitae and Norway spruce may be had for a few dollars a thousand, they need not necessarily be planted in compact rows, or closely in contact with the vineyard, but may be tastefully arranged in groups, as

ornaments to the grounds, while affording ample protection; but in the absence of other plans may be set in rows, to be transplanted elsewhere at leisure. In a few years they become large, doubling their saleable value year by year in a compound ratio. No flowing oil well pays greater dividends. Now is the time to plant. Let it be well done before the middle of May.

Our requirements in the preparation of compost are few and simple, consisting of peat or swamp muck and wood ashes, ten bushels of muck to one of ashes, frequently turned and well mixed, and is better, if two years old. On planting young vines we give them the benefit of well rotted stable manure, if well incorporated in the soil, to give them a vigorous start; but when a vine is well established, we prefer not to force it; we dislike an enormous growth of long-jointed, porous, tender, succulent wood, grown only to be cut off and thrown away, and much prefer a cane with smaller, compact wood, short-jointed and well ripened, hence avoid heating unfermented manures, dead carcases, and the like. Our compost we apply in small quantities and not often, *better none than too much.* The law forbidding the manuring of grapes in the Alta Domo district is, no doubt, founded in wisdom. We might say much more on manures, but a word to the wise (for whom we write) is sufficient. We are for moderation, and are willing it should be known to all men, believing that great injury has been done to grape culture by high manurists. "Our Method" of training is something after the manner of De Breuil, with a slight infusion of the Yankee element (improvements), and this we propose to illustrate by drawings, in its proper place. The materials required are posts, stakes, braces and wire. We select the wood in order, thus: locust, cedar, chestnut, oak, and—in default of either—the best we can get. They should be procured before-hand, and prepared for use by the assistant when he needs an odd job; cut of uniform length; the bark taken off with a drawing knife; kyanized, and piled up on skids, under cover, so as to be all ready for use when needed; and when so prepared, will be found to have gained one hundred per cent on the former value. Posts should be six inches in diameter at the butt; cut square at both ends; nine feet long, thirty inches of which is to go into the ground; for every trellis, two posts should be notched six inches from the top, to receive the end of the brace. Stakes to be three inches in diameter, at the base, eight feet long, sharpened to be set with a crowbar, to be driven eighteen inches into the earth. Braces selected from the large stakes, to be nine feet long; square at the bottom, and the upper end fitted to the notch on the outside post.

To kyanize, insert the lower ends, for a couple of days, in a solution of ten pounds of copperas (proto sulphate of iron) to fifteen gallons of water, using as a vat, a barrel with one head out. This will insure their preservation for a very long period. The copperas-water remaining is worth all its cost for disinfecting privies, hog-pens, &c., by further dilution and sprinkling, removing all offensive smells. For an acre of ground, which we assume to be nearly square—say 200 feet by 220—there should be 147 posts, 126 stakes, and 42 braces, allowing for twenty-one rows of vines, 180 feet long, which leaves a path of ten feet around the whole field, and that the posts be set 36 feet apart, with a stake in each interspace. In the meantime, our vines, for the first two seasons—say, 1865 and 1866—may be trained up to a common stake, or bean-pole, requiring no care, except to keep the ground mellow, and to be tied up to the pole as they grow, allowing the main shoot and its laterals the largest liberty.

As the wire is not needed yet for a considerable time, we propose to postpone its purchase, fully believing that our readers can buy at half price by waiting. When they do buy, get annealed wire, No. 12, sixty pounds of which contains seven hundred yards in length.

Having started the vinery, let us now plant our Twinery. Don't startle, reader, you are not to raise hemp, turn cot-

ton planter, or manufacture cordage; but simply set out, in some convenient, low ground, 500 cuttings of the purple willow (salix purpuera.) Get them from your nurseryman for five dollars a thousand. They should be eighteen inches long, and as large as one's finger. Make a hole with a small iron rod, after plowing the ground; thrust in your willow cutting, and the thing is done. They grow without trouble. Cut them down so as to force a large number of small, pliant rods from the stools, and you have the strongest, cheapest, handiest material to tie grape vines that can be produced; surpassing in excellence, twine, straw, strips of muslin, ravelled ropes or old rags.

A FEW WORDS ABOUT AN OLD FRIEND.

The Horticulturist is to me, like an old friend, whom one meets again and talks with, after long years of separation. It used to lie on my father's desk, when my life was freer from care than now. He read it for the sake of Downing the loved and lost; and now, long after the editor and the good man whom I love to honor, have both gone from earth, this old friend comes to me: old it is true, yet seemingly fresher and younger than when we first met. I like this old friend now, as I did not then; perhaps, because the man comprehends its value, better than the boy could. But then, again, it may be because my friend has improved in looks and character. Be this as it may it is an ever-welcome guest.

There always has been poetry in fruits and flowers, and in rural life, but every one cannot catch the rythm; my good friend the Horticulturist can and does: and this is another reason for renewing our old acquaintance. As it comes to me each month, it seems more than ever alive to the beauty and the glory of field and stream, and fruit and flower. "Dream Life" is to be realized, it seems, in the field, as well as by the hearth stone; and the "Reveries of a Bachelor," are no longer confined to delightful musing over the fragrant weed, but take a wider range among the fruits and flowers of the Eden of to-day; so faint a shadow of the Eden that was, which wedded life helped to consecrate. "Ik Marvel" loses none of his old enthusiasm, even when writing on wet days, from "Edgewood."

The vine-dresser and the florist, can cull the rich fruitage, and arrange the choice flowers of thought, for my old friend, as well as gather the purple clusters of the newest grapes for epicurean palates; or teach the soil to yield its nutriment for the sustenance of rare and choice plants in the conservatory or the garden.

We Americans, tend too much toward the practical; so let us have flowers as well as fruit. There is an æsthetical element in nature, as potent and real as in art. So let us gratify taste, as well as satisfy hunger. The bare stones by the way side are intensely practical; but the divine artist touches them, here and there, with the pencil of nature and the lichens transform them to things of beauty, and thenceforth they harmonize with the poetry of the floral world.

My old friend is not a poor dullard, who goes groping along, with no eye for the beautiful, and bent solely on tearing up the soil; but, on the contrary, as a true votary of nature, finds in all things, something of beauty, of which, even the curse, never totally despoiled any. Witness words like these:—"How the true lover of nature yearns for the opening of Spring, the song of birds, and the first flowers and fragrance. How delicious the early frog-peep. How welcome the crocus, or snow-drop, or violet! How refreshing the pure breath of Spring, and how eagerly is greeted the first warm shower, which starts into life a mass of sweet buds and fragrant blossoms! Who has more exquisite or simple pleasures than

the resident of the beautiful country? Who has cause for higher gratitude to God, than he who dwells among blossoms and fruits, and fragrant flowers?" Such is one of the later voices of my old friend. Do you not see that I have sufficient reason for renewing our friendship, and for eagerly looking forward to each monthly visitation.

M. B. S.

Passaic, N. J., March, 1865.

EDITOR'S TABLE.

To Contributors and Others.—Address all Communications, for the Editorial and publishing departments, to Geo. E. & F. W. Woodward, 37 Park Row, New York.

March Number Late.—When the forms of the March number were ready to go on the press, our stock of paper which had been ordered in ample season, was snow bound on the New York Central, with no probability of an immediate arrival. Our paper being of a size which is not obtainable ready made, we were compelled to order a new lot made in another locality. Notwithstanding this delay, and the fact of February being a short month, and our advertising list unusually heavy, we had a few copies of the March number in the office, on the afternoon of the 1st, our regular publication day. The principal part of our edition, however, did not reach our readers before the 10th. We mean always to be prompt, and if our advertisers would send in earlier, it would enable us to publish even before the first.

Woodward's Graperies and Horticultural Buildings.—This work will be ready in the latter part of April; will contain some 60 fine engravings. The matter for this book has been prepared expressly for it, and treats the whole subject in a concise and practical manner. It will be on the same fine quality of paper, and printed in the same elegant style as Woodward's Country Homes, 12mo cloth. Postpaid to any address, for $1.50. Geo. E. & F. W. Woodward, Publishers, 37 Park Row, N. Y.

Mr. A. S. Fuller, Author of the Grape Culturist, transfers his Nursery business, from Brooklyn, N. Y., to Godwinville, New Jersey. Mr. J. W. Cone, Grape grower, &c., of Norfolk, Conn., goes to Vineland, N. J. These gentlemen we suppose go to New Jersey, because the soil, climate, and other attractions are superior to either New York or Conn. As they are both pretty good judges of soil and crops, we think they purchase and settle with their eyes open. It is a good thing to be on easily tilled land, in a genial climate, and tributary to such unsatisfied markets as New York and Philadelphia, even if you do have to settle in New Jersey.

Mr. A. J. Caywood, of Modena, New York, has formed a partnership with L. M. Ferris, Esq., of Poughkeepsie, and has removed to the latter place. Messrs. Ferris & Caywood, are making extentive arrangements to continue and extend the Nursery business; they have a fine central position for a large trade.

Fruit Culture.—*Report of the Committee on the Greeley Premiums.*—On Friday evening, Feb. 11, the Comittee on "Large Fruits" of the Horticultural Association of the American Institute held a meeting at the residence of Wm. S. Carpenter, Esq., of this city, to consider whether the award of the

"Greeley Premiums" should be made at once, or left open for another season.

The meeting was organized by appointing Dr. J. A. Warder of Ohio, Chairman, and Mr. P. T. Quinn of N. Jersey, Secretary.

At the request of all the members, Dr. Warder and Dr. Sylvester of Western New York, were added to the Committee.

As the premiums offered by Mr. Greeley were made known only a few days before the exhibition of the Horticultural Association of the American Institute in September last, the Comittee, in justice to themselves and the public, after freely discussing the relative merits of the fruits already presented, passed unanimously the following resolution:

Resolved, That the award of the Greeley premiums" be postponed until after the exhibitions of the Horticultural Association of the American Institute, to be held in the middle of September, the second Tuesday in November and second Tuesday in December, 1865.

Resolved, That invitations for competition be extended to the growers of all varieties of Apples, Pears and Grapes, except the following kinds, specimens of which have been received by the Committee:

APPLES.—Hubbardston Nonsuch, Fallawater, Conkling's Seedling, Swaar and Baldwin.

PEARS.—Bartlett, Lawrence, Duchess, d'Angouleme, Dana, Hovey.

The object in extending the time from September 15 to the second Tuesday in December is to give persons offering *late* varieties of fruits an opportunity of presenting them when fully matured.

It was resolved that Mr. P. B. Mead be requested to act with this Committee in awarding the premiuns on the Grape, *which, at Mr. Greeley's request, is to be decided by that Committee.*

Mr. Greeley requests persons sending fruit for competition to forward it to the Committee at the American Institute, and in no case to him. Several lots have been sent to THE TRIBUNE office, which have not reached the Committee.

The Committee then adjourned to meet subject to the call of the Chairman.

JOHN A. WARDER, Chairman.

P. T. QUINN, Sec'y.

JOHN A. WARDER.	P. T. QUINN.
CHARLES DOWNING.	WM. L. FERRIS.
J. A. WARD.	E. WARE SYLVESTER, Committee.
WM. S. CARPENTER.	

N. York, February 11, 1865.

CALLA ÆTHIOPICA OR, EASTER LILY.—Although much has been written of this beautiful plant which is such a general favorite, I frequently find young beginners who do not have access to such books as treat of its culture, disappointed in it, and hear them complain that their plants have abundance of foilage but no flowers.

In all these cases I understand that the cause of failure is this: The plant has not had its season of rest, but has been kept in a growing condition all the year by frequent waterings. It should be turned out of doors about the first of June which is generrally after the blooming season, and left to dry in a sheltered place by laying the pots on the side, withholding water entirely except what is furnished by the rain in that condition until the last of August or first of September. By that time their fine leaves are dry and little is left but the root.

They must then be transplanted into rich, peaty earth after taking off the offsets. If single plants are desired put them in small pots, say six inches; but a large pot with one in the centre, and five or six separated around it, makes a pretty show. Place the pots in good sized saucers, and keep the latter full of water, not cold They will be sure to reward you with their pure flowers in abundance. M.

BOOKS, &c., RECEIVED.

THE FIELD AND GARDEN VEGETABLES OF AMERICA, containing full descriptions of nearly eleven hundred species and varieties, with directions for propagation, culture and use, illustrated, by Fearing Burr, Jr., Boston, J. E. Tilton & Co. No book heretofore issued by the Agricultural press, approaches this in labor, care and research, in choice artistic illustrations, and superb mechanical execution. It is to author, printer, binder, and publisher, a work that deserves the highest commendation. Standard and reliable authority on the subject of which it treats, it should be possessed by every one who owns or cultivates a farm or garden. A work of instruction and reference to which one may turn for information on any particular vegetable or species. Those who have Agricultural libraries can put this book at the head. Those who have not will find this a first class book to begin with.

THE YOUNG GARDENER'S ASSISTANT, in three parts, containing catalogues of garden and flower seeds, with practical directions under each head for the cultivation of culinary vegetables and flowers; also, directions for cultivating Fruit trees, the Grapevine, &c., to which is added a calender to each part, showing the work necessary to be done in the various departments each month in the year, by Thomas Bridgeman, Gardener, Seedsman, and Florist; New York, Wm. Wood & Co., No. 61 Walker Street. This is a new edition of a valuable work, by a popular and reliable author, and has been published in a new and attractive style. The opening Spring now calls attention to the Garden, and this is one of the books that can be consulted with profit.

ONIONS AND HOW TO RAISE THEM, by James J. H Gregory, Marblehead, Mass., author and publisher, 25cts. The onion crop is now one of the most profitable that is grown, and this work of 32 octavo pages gives just the information one desires, who proposes to raise onions. It contains several illustrations of onions, seed sowing machines, and implements adapted to onion culture. Mr Gregory is first class authority on onions, and this work is desirable.

TRANSACTIONS of the New York State Agricultural Society, with an abstract of the proceedings of the County Agricultural Societies, volume 23, 1863. A voluminous public document of 834 pages, with maps and engravings. Every resource of information on the agriculture of this State has apparently been exhausted.

THREE SCOUTS, by J. T. Trowbridge, author of Cudjoe's Cave, the Drummer Boy, &c.; Boston, J. E. Tilton & Co.; New York, Hurd & Houghton. This is a new work by a popular author; the present war furnishing the material for the subject. The plot is exciting, and the characters well sustained, $1.75.

ENOCH ARDEN, by Alfred Tennyson; Boston, Ticknor & Fields, paper, 25 cents. A low priced edition for popular reading.

ENOCH ARDEN, and other poems, by Alfred Tennyson; Boston, J. E. Tilton & Co. New York, Hurd & Houghton. Cambridge edition issued in the elegant style so characteristic of these publishers, $1.50.

1865, Vilmorin, Andrieux & Cie., Extrait général des Catalogues. Vilmorin, Andrieux & Cie., Marchands Grainiers, 4 (ancien 30) quai de la Mégisserie, Paris.

SPRING CATALOGUE of New Plants, 1865. Dahlias, Verbenas, Petunias, Fuchias, Roses, Geraniums, Phloxes, Chrysanthemums, etc., grown and for sale by R. G. Hanford, successor to A. G. Hanford & Bro., Columbus Nursery, Columbus, Ohio.

DESCRIPTIVE CATALOGUE of standard and dwarf standard Roses, Fruit and Ornamental Trees, Flowering Shrubs, Vines, Greenhouse, Hardy Plants, &c., cultivated and for sale by G. Marc, Astoria, Long Island, N. Y.

PHOENIX's abridged, priced, descriptive Bloomington Nursery list of Fruit and Ornamental Trees, Plants, Bulbs, &c., with hints for their cultivation, F. K. Phoenix, Bloomington, Ill.

ELEVENTH Annual Catalogue of choice Verbenas, Dahlias, Roses, Geraniums, Fuchias, Heliotropes, Pinks, Lantannas, &c., for sale by Dexter Snow, Chicopee, Mass. 1865.

CATALOGUE of Vegetable, Agricultural, and Flower Seeds, for sale by Brill & Kumerle, Growers, Importers and Dealers, 153 Broad St., Newark, N. J. 1865.

McELWAIN BROS., Catalogue of Seeds, and Vegetable and Flower Garden Manual, comprising a list of all the valuable varieties of American growth, together with many rare varieties and novelties, obtained from the most reliable English and Continental dealers and growers, with special directions for their cultivation. McElwain Bros., Springfield, Mass. price 15 cents.

EIGHTH Annual Catalogue of Plants, &c., cultivated and for sale by Edgar Sanders, containing descriptive lists of Roses, Verbenas, Heliotropes, Geraniums, Petunias, Dahlias, and Hardy Plants, grown at the Lake View Flower Garden, Chicago, Ill. P. O. Box, 4183.

BRUCE's Great Upper Canada Seed and Nursery Establishment. Descriptive Catalogue of Seeds for the Farm, the Kitchen Garden, and the Flower Garden; also of Culinary Roots, and a choice collection of Flowering Bulbs for Spring planting, with brief hints on sowing, planting, cultivation, &c. John A. Bruce & Co., Hamilton, C. W.

A DESCRIPTIVE CATALOGUE of choice and select Flower and Vegetable Seeds, including splendid assortments of Asters, Balsams, Stocks, Zinnias, &c., with the most approved varieties of Vegetable Seeds in cultivation, for sale by HENDERSON & FLEMING, Seedsmen, No. 67 Nassau Street, New York.

CATALOGUE of the corporation, officers and students of Hamilton College, Clinton, New York, 1864 and 1865. We are indebted to Professor North for this, and extract the following relating to the College grounds:

"The Park, in the midst of which the College edifices stand, embraces fifteen acres. This has been laid out in the modern English method, with trees and shrubs scattered over it, singly and in groups, and with carriage-ways and foot-paths winding through its different parts, giving the visitor a view of the entire surface. The trees, deciduous and evergreen, have been arranged chiefly with a view to their landscape effects, though a classification in families has not been wholly lost sight of. A Pinetum has been begun, in which a large number of the conifers, hardy in this climate, may already be found. Among the Elms, Maples, Lindens, Oaks, &c., we have five or six varieties of each species.

In those portions of the ground daily traversed by the students, plots have been laid off and devoted to shrubs, vines, and flowering plants, some of which are cultivated by the under-graduates.

It is the design of the Trustees and the Faculty to render the Park increasingly attractive from year to year. New trees and plants will be added to the present collection as fast as they can be obtained. And, for the more speedy accomplishment of this end, contributions are invited from the friends of the Institution. It is a pleasure, here, to acknowledge handsome donations already received from various persons, especially those from Mr. Charles Downing, of Newburg; Henry W. Sargent, Esq., of Fishkill; Messrs. Ellwanger & Barry, of Rochester; and Messrs. Hovey & Co., of Boston.

At a late meeting of the Board of Trustees, a vote of thanks was tendered to Prof. Root, Rev. A. D. Gridley, and John C. Hastings, Esq., for their skilful and generous services as Curators of the College Grounds."

CORRESPONDENCE.

MESSRS. EDITORS.—Could not you, or some of your numerous correspondents, give us, through the columns of the HORTICULTURIST, a plan of a small propagating house? making your description so specific as to enable one, living in a region where we have no architects skilled in the construction of Horticultural buildings, to construct a house that would be likely to prove a success. It is true, the pages of the HORTICULTURIST have occasionally presented us with such plans—as, for instance, on page 73 in the volume for 1862, by Mr. Henderson, of Jersey City. But I think all the plans I have seen do not give sufficient detail in their descriptions to enable a novice to construct a house, without some danger of it proving a failure. Is a lean-to house the best? and if so should it face north? It was my opinion that it should; but I see that Mr. Fuller, in his Grape Culturist, speaks of having the roof sloping to the south. Is the method of heating by hot water in wooden gutters, as spoken of by Mr. Henderson in the article referred to above, the best method? Would it be a good plan to construct a house, say 18 or 20 feet wide, and 25 or 30 feet long, with a close partition through the centre, from end to end, and running east and west, using the north side for propagating purposes, and the south side for a cold grapery, or for bringing forward plants after they were taken out of the propagating bed? I have had a good degree of success in propagating grape vines in ordinary hot beds, but I want something better. The price of material is so variable that I do not expect you to give an estimate of the cost of a house. But if you will answer the above inquiries, you will greatly oblige at least one cultivator, who finds an especial pleasure in seeing a plant growing under his own care and attention; and I have no doubt many of your country readers would prize such information as much as your subscriber.

G. H. MILLER.

Dec. 24, 1864. Norwich, Ohio.

For the exclusive propagation of plants, if they were removed as soon as active growth commenced, we should prefer a lean-to house facing the north. For growing plants, as well as propagation, a span roof running east and west would be desirable. Such an arrangement would give a north and south side. The north could be used for cutting beds, and the south for growing the plants. A board partition through the centre, would give to the north house partial protection from the sun, and enable a proper balance between atmospheric and bottom heat to be maintained. A house facing south would receive so much heat from the sun as to make the management of cuttings difficult. On the north, little, if any, shade would be required, and the care and attention be proportionately less. We give a sketch and description of a house lately erected by us for the propagation of grapes, which will answer nearly, if not quite all your questions. Fig. 1 is the ground plan showing dimensions, arrangement of tanks, position of boiler, &c. The foundation is of stone, projecting six inches above the ground, but may be of wooden posts. Three feet of upright boarding, and two feet of glass sashes in front, swung at top for ventilation. Top ventilation is afforded at the ridge by sashes raised by rods from the inside. The roof is fixed, that is, composed of sash bars extending from plate to ridge, in which the glass is set. Bottom heat is obtained from wooden tanks made of 1¼ inch stuff, two feet wide and six inches deep, with a division in the centre to separate the flow and return water. The top of tanks are covered with roofing slate laid closely together, and the joints carefully cemented to prevent any escape of vapor. Half-inch boards are sometimes used in covering tanks, but do not radiate heat as well. Sand is placed directly upon the slate, and the pots containing cuttings plunged into it. The smoke from the boiler is carried the whole length of the house on one side, under the

tank, through vitrified drain pipe, and then passes into the chimney. Considerable heat is also obtained from the back of boiler and connecting pipes, the partition being built over the boiler, leaving only fire and ash-pit doors inside of boiler pit. Nearly all the heat is thus economised. Tanks alone are insufficient, when covered by sand, to keep the temperature of the house above the freezing point on cold nights. It would be desirable to have a four inch iron pipe entirely around the house, and the heat regulated by a valve—in this case expense was an object, and it was left out. In the south division, tanks are also used, covered with slate as before, but no sand. A table

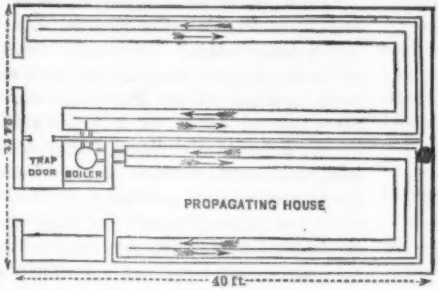

FIG. 1.

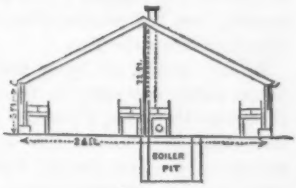

FIG. 2.

of slats placed two inches apart, and above the tank 2 inches, is built, on which the pots rest. This disposition allows the heat radiated from the slate to diffuse itself through the house. Each house can be worked independently, or both at once, by means of slides or gates in the tanks, shutting off the water from either, at pleasure. The propagating house can be started first, and when necessary to pot off the plants, both may be used in connection. Where the question of expense is not considered, hot water in iron pipes will be found the best for general use in propagating and heating. Tanks are less expensive, and with proper management work well, but if not carefully put together, are troublesome on account of leakage. Those of brick and cement are a constant source of annoyance. A brick flue in a house of moderate size will answer a good purpose, if rightly managed, and on the score of expense, has the advantage of other modes of heating.

MESSRS. EDITORS:—In regard to the mooted point contained in the communication of Mr. F. K. Phoenix, in your January No., page 28, I will state as my experience, that I have received in several instances, plants in midwinter without injury. I received in February, 1863, several boxes and a bale of shrubs, plants and bulbs from Paris. They arrived in New York, on the 15th February, remained several days in the custom house, and were several days on the road from New York here. They were well packed in very damp moss, but of course were completely frozen. I allowed them to remain in the packages and thaw out gradually in a close cellar, excepting the bale, which was opened immediately, and the shrubs packed in sand and moss, the sand covering the roots and the moss covering the tops. I did not find one plant in the whole lot that was injured in the least by the frost. There were Dahlia roots in one box, which were not injured. Again last winter, I received a lot of Greenhouse Plants, which were shipped on Dec. 17th, at Boston, arriving here Dec. 21st. These were also completely frozen. After thawing in the cellar unpacked, on being opened,

I found that none had been injured, excepting a few Begonias, (hothouse plants) which afterwards revived. I could, if it were necessary, mention many instances where I had received plants frozen, which were not injured in the least. I have known Apples and vegetables to be frozen hard, without the least injury where they were thawed out gradually in tight barrels in a close cellar.

How far plants may gradually have their roots exposed to the air and extreme changes of the weather, I have not experimented, but the process when successful dwarfs or stunts the Tree.

In my opinion, all hardy and most of tender plants may safely be transported in the severest weather, if properly packed in well dampened moss, if the packages are not opened to warm air, but thawed very gradually in a cellar where the heat is low. Rather than receive plants, &c. in warm weather, I prefer to receive them frozen, if I have cellar room to store them.

W. D. Strowger.

Oswego, Feb. 16, 1865.

To the Editors of the Horticulturist.—You give us a good deal of valuable information in your paper, on the subject of raising Fruits, grapes included.

Now, cannot you put us in the way of making our own sugar? I hear that a great quantity of Sorghum is raised in Orange County, and that beets for sugar are extensively cultivated in other parts. But what is to be done with them after they are raised? Cannot you put us in the way of having these things converted into sugar? Would it not be profitable for each neighborhood to have its sugar mills, as well as its flour mills? Think of the matter, Mess. Editors, you who have a genius for many things, and try to help us in this difficulty.

Let us hear what your opinion is, in the April number of your excellent paper, and oblige

An Old Subscriber.

Will some of our correspondents furnish the information?—Eds.

Reid's Nurseries, Elizabeth, N. J.
February 9th, 1865.

Messrs. Editors:

Gentlemen:—In reading an article entitled, "Trees and Shrubs of beauty, for a place of small extent," published in Feb. number of the Horticulturist, I noticed the following sentences:

"For a Hedge to turn Cattle, we have nothing better than the Buckthorn, and need nothing better." "Just now *interested parties* are stunning the public ear with appeals, in behalf of the Honey Locust, or three thorned Acacia, for a Hedge plant Nature intended the Honey Locust for a tree, and nature's intentions are not so easily defeated as some men seem to think." "The man who surrounds his fields with the Honey Locust, in the expectation that they can be kept loyal to the humble condition of hedge plants, should retire from other cares, and devote himself to the shears," &c., &c.

The above is purported to have been read from an essay, by Prof. North, of Hamilton College, at one of the meetings of the Clinton Rural Association.

It is with a great deal of diffidence that I notice the above remarks; but as they are so manifestly calculated to mislead the public, I feel constrained to reply to them.

The Prof. condemns the Honey Locust because it is a tree, and in the next paragraph, you will find that he highly recommends the Hemlock and Arborvitæ for Hedging, which are also trees. He might also say the same of the Norway Spruce, which makes a most perfect and beautiful Hedge; yet if left to its own inclination, will grow to a large tree.

Now Messrs. Editors, I advocate the Honey Locust, and confess myself an interested party, not from mercenary motives, but because I feel that it is to the interest of those about planting Hedges to introduce that which is most desirable for the purpose intended.

We have proved the Honey Locust to be the *best* without exception for an impene-

trable Hedge. It will turn cattle; the old wood is too hard for them to browse on, consequently it can always be kept in good form.

There is more than a mile of the Honey Locust Hedge on these grounds, upwards of twenty years old, from five to six feet in height, well branched from the ground, close and compact, without a flaw or vacancy. It is perfectly hardy; seldom dies out; always looks smooth, and is a most attractive feature, with its fine foliage and symmetrical form. It only requires cutting twice in each year: (no more) first in the month of June, which is the heaviest cutting, at which time two men with shears can cut from 400 to 500 feet per day. The second cutting is in September, when two men can cut from 1200 to 1500 feet per day, the growth being very light, or it can be kept quite decent with only one cutting, which can be done in June, or midwinter. No more care is required than the above, to keep a Honey Locust Hedge in fine condition, (with the exception of hoeing the ground around the roots once or twice during the growing season).

The Osage Orange is more rapid in its growth, and so irregular that it requires constant attention with the shears to keep it in proper shape.

The Buckthorn is also a very good Hedge plant in some localities. Here it does not do well unless cut early in June; if left uncut 'till July, the sun acts on it in such a manner, that the leaves are scorched, giving the Hedge the appearance of having been burned by fire, leaving irregular spots which makes it rather unsightly. Further *North* it may do well.

For Evergreen Hedges, I quite agree with the Prof. in recommending Hemlock and Arborvitæ. The former is the most beautiful, but more difficult to establish in a hedge than the latter, which can be grown without much care or skill, and is less liable to be killed by transplanting. The Norway Spruce is too well known to need comment, and is rapidly gaining popularity for Hedging purposes.

The late proprietor of this Nursery, Wm. Reid, (deceased) having a love for the beautiful as well as useful, and foreseeing the great necessity of having a good reliable hedge plant for farms or gardens, planted specimens of almost everything that suggested itself to his fertile mind, and at the present time there are on these grounds, specimens of the following varieties, which are living monuments to his memory:

Honey Locust, (or three thorned Acacia.)	*Deciduous.*
Cydonia Japonica, or Pyrus Japonica.	
Osage Orange.	
European Beech.	
Buckthorn.	
Privet.	
Red Dogwood.	
American Arborvitæ.	*Evergreen.*
Hemlock Spruce.	
Norway Spruce.	
White Cedar.	
Red Cedar.	
American Holly.	
Tree Box.	

The above can be seen at any time by those who wish to examine them, and judge for themselves.

In conclusion, I would state, that the Pyrus Japonica is the finest deciduous plant for ornamental hedges we have. In the Spring, with its beautiful scarlet or white flower, presenting a most unique and beautiful appearance. It also makes an impregnable hedge to cattle, &c., but owing to the cost of propagation would be rather expensive for a farm hedge.

N. B.—Being a novice in the art of writing articles for publication, I trust you will excuse the plainness of these remarks.

Yours, very respectfully,

DAVID D. BUCHANAN.

Successor to Wm. Reid.

"BRIGHT BANK," ULSTER CO., N. Y.

MESSRS. EDITORS:—

I propose to say a word on the never failing topic,—"my Grapes,"—and in the order of their ripening.

Hartford Prolific, ripe 25th August. This variety is popular with my family and friends, and a good bearer—drop easy.

Rebecca—ripened at same time. This grape is a favorite; a beautiful leaf, early, very pleasant, and prolific; skin rather tough.

Concord—ripe Sept. 4th. This variety, I think, is one of the best. An abundant bearer, large, and good flavor.

Delaware—Sept. 8th. Best of all.—Enough said.

Union Village—Sept. 10th. A pleasant grape, but its location is poor with me.

To Kalon—Sept. 20th, ditto.

Diana—Sept. 20th. Stands with us next to the Delaware, and the last season did the best.

Isabella—Sept. 28th. Fine exposure, good.

Catawba—does not ripen well with us, though they bore well the past year, and we enjoyed them after the others were gone

Under the best circumstances, for out-door culture, I tried the Black Hamburgh and Brinkle, and I am *quite satisfied*, that under glass is the place for these.

My other vines, Iona, Israella, Lincoln, Adirondac and Allen's Hybrid, have not come to bearing. J. B. S.

HARTFORD, CONN., 13th March, 1865.

MESSRS. WOODWARD:—

A few words about propagating hardy grape vines, from single eyes.

In the fall of '63, I divided a small lot of eyes; a part were carefully laid away in a greenhouse, and at the proper time, were subjected to the usual treatment under glass.

Late in the spring, during a warm, dull day, the other part were taken from the ground, where they had been buried, out of doors, and potted, singly, in small pots. They were then plunged in a border, specially prepared, with a mixture of sand and horse manure, and then covered out of sight, slightly, by shaking over them a dressing of half decayed horse dung (a sort of hot bed without glass). Both lots grew in about the proportion of nineteen out of twenty. Both were turned out and planted in a vine-yard row in summer, but the difference in growth, at the end of the season, was in favor of those propagated without the aid of glass and bottom heat.

I suggest the method, as within the reach of all amateurs who wish to increase their choice varieties without much trouble or expense.

Respectfully yours, &c.,

D. S. D.

MESSRS. EDITORS.—The opening number of your Journal for 1865, has given me much gratification. In it I discover a willingness to discuss both sides of a question, even if it may differ from your own preconceived notions, this is the true idea of progress, allow practical men to state their experience, without discouraging comments, and your Journal will become more popular. Your editorials have always given me pleasure and I *hope* profit.

In my efforts to induce a larger circulation the remark is often made. "If a communication is worth publishing, why not let the reader judge of its merits without prejudice." What we want are sound, well written treatises on Horticulture and the Rural arts to be confirmed or disproved by actual results—and these results are the true gist of the matter. 'Theories are very good until refuted by practice. It is easier to affirm than to disprove—but when a theory is confuted, if even one of your own favorites, Messrs. Editors, let us have the recantation. Should these remarks be kindly received, I will at a proper time, send you the results of my experience in contrast with the hypothesis of some well known Horticultural teachers.

Respectfully your friend,

COGNITA.

Twin Boulders, January 5, 1865.